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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/521,742	03/09/00	HAMMARSTROM	L 49122

EXAMINER	
HARRIS, A	
ART UNIT	**PAPER NUMBER**
1642	6

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DATE MAILED: 10/25/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

1- File Copy

PTO-90C (Rev. 2/95)

U.S. G.P.O. 2000 ; 465-188/25266

Office Action Summary

Application No.	Applicant(s)
09/521,742	Hammarstrom et al.
Examiner	**Group Art Unit**
Alana M. Harris, Ph. D.	1642

☒ Responsive to communication(s) filed on *September 6, 2000.*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-31* is/are pending in the applicat

Of the above, claim(s) *1-27* is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *28-31* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3, filed

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. Applicant's election with traverse of Group III (claims 28 and 29 and newly added claims 30 and 31) in Paper No. 5 (filed September 9, 2000) is acknowledged. The traversal is on the grounds that the Applicants believe Groups II and III could be searched together without undue burden. This is not found persuasive. The argument that a search encompassing Groups II and III is not found persuasive for the reasons set forth in the restriction requirement (Paper No. 2, mailed June 27, 2000). As to the question of burden of search, the claims of Groups I-X are classified differently, necessitating different searches in the U.S. Patent shoes. Classification of subject matter is merely one indication of the burdensome nature of the search involved. The literature search, particularly relevant in this art, is not co-extensive and is much more important in evaluating the burden of search. Clearly different searches and issues are involved in the examination of each group. Additionally, the method of Group II could be conducted *in vivo* or *in vitro* and Group II can only be conducted *in vivo*. For these reasons the restriction requirement is deemed to be proper and is adhered to.

The requirement is therefore made **FINAL**.

2. Claims 1-31 are pending.

Claims 30 and 31 have been added.

Claims 1-27, drawn to non-elected inventions are withdrawn from examination.

Claims 28-31 are examined on the merits.

Specification

3. The disclosure is objected to because of the following informality: on page 22, line 2 the sentence has no period. Thus it is not known what information is missing from the specification.

Appropriate correction is required and Applicants should review the entire specification for similar errors.

Claim Rejections - 35 U.S.C. § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 28-31 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for treating malignant cancer cell lines such as those listed in Table 1 of the specification (page 26) comprising an enamel matrix derivative, namely EMDOGAIN®, does not reasonably provide enablement for a method for preventing or treating malignant or benign neoplasms, comprising administering to a mammal an active enamel substance. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice and implement the invention commensurate in scope with these claims.

a. The specification does disclose evidence of increased apoptosis in some of the malignant cancer cell lines in Example 2 and 3, pages 23-26. This evidence is based on *in vitro* experimentation. And this experimentation is questionable because Applicants have failed to provide information corollary to control situations. There is no baseline from which to judge the apoptosis action. How is one skilled in the art to know apoptosis activity of the cell lines before the addition of EMDOGAIN® if there is no disclosure of the recited activity?

b. Although, the data presented is based on *in vitro* studies the recitation "administering to a mammal in need" reads on *in vivo* experimentation. Granted the Office does not require that experiments under the scope of the claims produce positive and astonishing results, the experiments must be within the scope of the Forman factors (see Ex parte Forman, 230 USPQ 546, BPAI, 1986). The quantity of experimentation necessary to determining whether or not any active enamel substance is capable of preventing or treating any malignant or benign neoplasms is infinite. The specification has only provided evidence of treating cell lines from specified organ systems such as the mammary glands and skin, see page 26. One skilled in the art could not be expected to identify all cell types from any and all neoplasms that are at least responsive to any active enamel substance, derivatives or mixtures. There would also need to be some valid amount of direction or guidance, as well as presence or absence of working examples presented in the specification that would enable one skilled in the art to perform the method as presented in the recited claims. The predictability of the art in regards to the correlation of *in vivo* experimentation with *in vivo* experimentation is insurmountable. Likewise, it is well known in the

art of cancer treatment that tumors of differing cell types respond differently to a given therapeutic approach, and that a treatment modality that is effective against a tumor of one given cell type would not necessarily be expected to be effective against tumors of differing histological origin. Tumors of all cell types are not expected, by those of skill in the art to respond in a similar fashion to the administration of a given class of molecules. Johnson and Golden (Cancer Treatment Reviews 2:1-31, 1975) reiterates this fact in Table 2 found on page 5 exemplifying the comparison of activity spectrum of established clinically active antitumor agents in human tumors.

Moreover, methods of treatment of cancer are numerous, yet not fullproof nor equivocally effective to all tumor types. Preventing malignant or benign neoplasms is just as complex a process. What parameters would one skilled in the art use in order to identify a population that neoplasms could be prevented? Would prevention be regarded as restrained cell growth, no palpable tumor or a specified number of cell ploidy in a given cell population?

c. Additionally, how could the active enamel substance that would be administered to a mammal discriminately induce apoptosis in a neoplasm versus a "normal" cell? Furthermore, where and how would the active enamel substance be applied? Would the enamel substance be topically or intravaneously administered? Therefore for the reasons stated and in view of the insufficient guidance in the specification, undue experimentation would be required to enable the claims.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The recitation "...prophylactically or therapeutically effective amount of an active enamel substance." in claim 28 is vague and indefinite. What amount is deemed prophylactic, as well as therapeutic?

b. Claim 28 is vague and indefinite in the recitation "...preventing or treating malignant or benign neoplasms, ..." is vague and indefinite. Is treating considered the total abolishment of the neoplasm, arresting cell growth or reduced tumor size? Accordingly, it is impossible to determine the metes and bounds of the claimed invention.

c. The recitation "affected tissue" in claim 29 is vague and indefinite. What deems a tissue "affected"? How would one skilled in the art be able to determine the metes and the bounds of the claim?

d. Claims 28 and 29 are vague and indefinite in the recitation "enamel substance"as the metes and bounds of the claim cannot be determined. An enamel substance can be anything, a peptide, an organic molecule, an inorganic molecule, a DNA fragment, a plastic, a carbohydrate, etc. Applicant's attention is directed to Ex Parte Tanksley (26 USPQ2d 1384) wherein the Board

noted that under 35 U.S.C. 112, second paragraph, the claims must be so definite as to allow the comparison with the available art and must also make it possible for the public to determine from the claims what they encompass. How would one skilled in the art be able to determine the metes and bounds of the claims?

e. The recitation "...an active enamel substance." in claims 28-31 is vague and indefinite. What qualifies the enamel substance active? What properties are bestowed upon the enamel substance?

f. Claims 30 and 31 are vague and indefinite in the recitations "derivatives", "derivatives thereof" and "mixtures thereof". It is not clear what possible enamel matrix combinations and how many types of enamel substances are encompassed by the claimed "derivatives" and "mixtures". As written the metes and bounds of the claims are unclear.

8. Claims 28-31 are free of the art.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alana M. Harris, Ph.D. whose telephone number is (703)306-5880. The examiner can normally be reached on Monday through Friday from 6:30 am to 3:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Caputa, Ph.D., can be reached on (703)308-3995. Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Group receptionist whose telephone number is (703)308-0196.

Alana M. Harris, Ph.D.
Patent Examiner, Group 1642
October 21, 2000

GEETHA P. BANSAL
PRIMARY EXAMINER